



January 26, 2001

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TO: Distribution

FROM: Eugene S. Burke

SUBJECT: Minutes for the Joint Users Resource Allocation Planning Committee Meeting held January 18, 2000.

NEXT JURAP MEETING:
Thursday, March 15, 2001
JPL Bldg. 303, Room 209 B 1:00 p.m.

We have instituted a simple Teleconference capability for non-JPL numbers.
Please contact D. Morris if you wish to participate.

Attendees:

C. Abramo	B. Compton	K. Kim	R. Ryan
V. Altunin	D. Doody	N. Lacey	M. Slade
B. Arroyo	J. Hall	G. Martinez	B. Toyoshima
R. Bartoo	J. Hodder	J. Miller	J. Valencia
A. Berman	R. Hungerford	D. Morris	I. Webb
G. Brower	J. Kehrbaum	K. Moyd	K. Yetter

The Joint Users Resource Allocation Planning Committee meets monthly to review the status of Flight Projects and other resource users and to identify future requirements and outstanding conflicts. The last regular meeting was held on January 18, 2001, at the Jet Propulsion Laboratory.

Introductory Remarks – E. Burke

Funding for the additional 34m Beam Wave Guide antennas have not yet been approved. The February 2001 RARB will only cover up to October 2003. R. Hungerford and R. Bartoo were introduced as new members of the Resource Allocation Planning and Scheduling Office.

DSN Operations – J. Hodder

The DSN performance is nominal; please see statistics on page 11. A number of DSN equipment failures were reported. DSS-45 experienced a failure in the elevation encoder electronics, which has since been repaired. DSS-25 was unable to radiate full power at MGS frequencies, nor provide Valid Doppler during the Stardust EGA. A pointing offset problem at DSS-54 resulted in the loss of a NEAR pass. The pointing problem will be worked during the scheduled January maintenance period.

The DSN experienced two anomalies on DOY 366 of 2000. One was in the 26m Antenna Pointing system (MPA), and the other was in the Frequency and Timing System (FTS).

California's power problems and the threat of rolling blackouts to the DSN were discussed. JPL is identified as a critical user and, to relieve peak loading in the L.A. area, the NOCC will use generators daily from 3:00 p.m. to 6:30 p.m. Goldstone will use generator power daily for 16 hours from 10:00 a.m. to 2:00 a.m.

Resource Analysis Team – K. Kim for F. Leppla

Preparation for the February 2001 RARB is being worked. The CASSINI array support study for 2004–2008 is ongoing. The Galileo extended mission study, Solar Stereo, Contour, MEO, and VSOP2 loading studies are being worked.

DSS Downtime Forecast – N. Lacey

The NSP Implementation Downtimes will be presented to the Resource Allocation Review Board (RARB) on February 13, 2001. Also, due to the accelerated Network Simplification Project (NSP), DSS–26 First Delivery Date is now planned for August 1, 2002, however, DSS–26 will be operational only during the DSS–15 NSP Downtime, August 1, through September 27, 2002. DSS–26 will require NSP Test and Training Downtime, October 1, 2002 through March 30, 2003.

Downtimes for the 70m Antenna Controller Replacement task in 2003 are being worked. The requested window for DSS–65 Antenna Controller Replacement is 07/15/03 – 11/30/03, and proposals are being worked. The DSS–45 Antenna Controller Replacement is scheduled for 09/08/03 – 10/26/03.

Goldstone Solar System Radar – M. Slade

December and January activities will concentrate on preparing to support the Mercury South Pole and Venus radar interferometric Topography observations. An Observation of Near-Earth Asteroid 2000 YF29 has been scheduled for January 21, 2001.

Radio Astronomy / Special Activities – G. Martinez

Two Time and Earth Motion Precision Observations (TEMPO) were supported in November with 95% of data time utilized. Three TEMPOs were supported in December with 100% of data time utilized. Three Cat M & E observations were successfully supported in December with 97% of data time utilized.

In support of Gravity Probe–B mission, four X-band dual polarization prelaunch guide star survey supports were conducted in December with 97% of data time utilized. In support of Europe–59 mission, DSS–65 supported observations to determine station coordinates and their evolution in the European geodetic VLBI network, with 100% of data time utilized.

Flight Project Reports:

Chandra – G. Wright

No report

Image – A. Berman

The IMAGE Spacecraft and Payload are operating nominally with raw data collection rate exceeding 99%. IMAGE lights-out operations is working well. The IMAGE Flight Ops Team is down to 2.5 personnel from the pre-launch maximum of 5 personnel. Based on early scientific returns, the IMAGE Science Team will be requesting additional funds during the upcoming Senior Science Review in order to extend IMAGE Operations past current EOPM date of 5/30/2002.

Stardust – R. Ryan

The spacecraft is healthy and is presently 0.013 AU from Earth (12 Sec RTLT). The Earth Gravity Assist and closest approach events on January 15 were successful. The orbital period has changed from 2 to 2 1/2 years. DSN support has been very good despite some difficulties with DSS-25 during the closest approach support.

Voyager – J. Hall

Voyager 1 and Voyager 2 status is nominal and overall DSN support is good. Voyager 1 heliocentric distance is 79.9 AU with a RTLT of 22h19min. Major activity: DTR playback of PWS data, ASCAL, and MAGROL. Voyager 2 heliocentric distance is 63.0 Au. The RTLT is 17h42m38s.

Cassini – D. Doody

Excellent DSN support despite some difficulties with the Block V Receiver acquiring Symbol Loop Lock. The Jupiter Gravity assist support was successful. The spacecraft experienced a reaction wheel problem. An anomaly with reaction wheel #2 caused the s/c to autonomously switch to thruster control. Tests were conducted to better characterize the anomaly. Two probable failure modes were identified and a work-around is in place. Huygens Probe link anomaly work is in progress and tests with the DSN are planned.

U. S. Space VLBI – V. Altunin

HALCA spacecraft is healthy enough that its operation can be continued through February 2002 (official termination date for the NASA support) and probably further.

Mission Management Office (MMO) – E. Brower

MGS Flight Operations, Science instruments, and Flight Support systems remain green. Full funding for an Extended Mission was authorized October 16, 2000, and the first DDOR observation was successfully supported on January 9, 2001.

M01O Orbiter has arrived at the Cape for the scheduled April 7, 2001 launch. Orbiter arrival at Mars is planned for October 24, 2001. The recent DSN end-to-end data flow was successful.

Ulysses – I. J. Webb

Spacecraft operations are normal. The spacecraft has begun its second orbit around the sun and is currently in nutations operations. A number of DSN operational support problems

and equipment failures were experienced: DSS-34 drove off point due to an operations procedure, resulting in telemetry loss; a routine TSF transfer between DSS-43 and DSS-34 failed because DSS-43 used the XA frequency instead of the TSF frequency. A time-code translator failure at DSS-34 caused the antenna to halt, resulting in telemetry loss. DSS-43 could not meet a scheduled support due to a complex-wide power failure.

International Solar Terrestrial Program (ISTP) – R. Mahmot (no oral report)

WIND and POLAR operations are nominal. Wind and POLAR successfully conducted tests with the new command uplink system (UPL) using DSS-34 and DSS-54.

The IMAGE on-board computer rebooted due to multiple memory bit errors. The re-boot automatically put all the instruments into safe mode. The IMAGE team fully recovered to full science operations.

SOHO experienced an Emergency Sun Reacquisition (ESR) which was triggered by an Attitude Control Unit computer reset. A spacecraft emergency was declared and the DSN provided extended coverage. All science instruments have returned to full science mode. SOHO successfully conducted loopback tests with the UPL system using DSS-34 and DSS-24.

A Cluster II oral report from C. Abramo noted recent success in simultaneous support of three spacecraft by three Goldstone antennas twice in January. A separation maneuver is planned in May that will change currently forecasted support times in 2001.

Galileo – B. Compton

OTM-90 was successfully executed on October 27, OTM-91 on December 21, and OTM-92 on January 02, 2001. Ganymede 29 encounter was successfully completed on December 28, 2000. Next event is the Callisto encounter planned for May 30, 2001.

Deep Space 1 – K. Moyd

No spacecraft or ground systems problems were encountered during Solar Conjunction period from October 22 through December 5, 2000. Successfully received both X and K_A telemetry in November using DSS-25 with a spacecraft Sun Earth Probe angle of 1.9 degrees.

Uploading of M6F3 version of flight software is scheduled for March 5, 2001. Comet Borrelly encounter rehearsal currently being planned for March 27 with additional encounter rehearsals planned for June and September. Comet Borrelly encounter is planned for September 22, 2001.

Near Earth Asteroid Rendezvous (NEAR) – J. Miller

Spacecraft is healthy and all instruments are operational except Near Infrared Spectrometer (NIS), which is disabled due to excessive current draw. NEAR has now been in orbit 302 days around Eros. OCM-21 is planned for January 24, 2001 to set up a highly elliptical lower orbit. OCM-22 is planned for January 24, 2001 to set up the closest approach trajectory. Recovery burn is planned on January 28 to establish the transfer orbit. Powered descent is planned for February 12 and End-of-Mission to be declared February 14, 2001.

Advanced Composition Explorer (ACE) – R. Sodano (no oral report)

Routine weekly spacecraft attitude maneuvers were successfully performed. The ACE SEPICA instrument is not generating any science data and the instrument team is investigating the problem. ACE successfully conducted loop back tests using the new command uplink system (UPL) at DSS-54, DSS-34 and DSS-24.

ACE

Afkhami, F.	GSFC 428.2*
Machado, M. J.	GSFC Code 428.2*
Myers, D. A.	GSFC Code 428.2*
Sodano, R. J.	GSFC Code 581.1*

Canberra Deep Space Communications Complex

Churchill, P.	CDSCC #
Jacobsen, R.	CDSCC #
O'Brien, J. J.	CDSCC #
Ricardo, L.	CDSCC #
Robinson, A.	CDSCC #
Wiley, B.	CDSCC #

Cassini

Arroyo, B.	264-235
Chin, G. E.	230-310
Doody, D. F.	230-301
Frautnick, J. C.	230-301
Gustavson, R. P.	230-301
Maize, E. H.	230-104
Mitchell, R. T. (PM)	230-205
Webster, J. L.	230-104

Chandra

Gage, K. R.	SAO*
Lavoie, A. R. (PM)	MSFC Org. FD03*
Marsh, K.	TRW*
Weisskopf, M. C. (PS)	MSFC Org. SD50*
Wicker, D.	TRW*
Wright, G. M.	MSFC Org. FD03*

Crustal Dynamics

Clark, T. A. (PM)	GSFC Code 920.3 *
Thomas, C. C.	GSFC Code 920.1 *
Vandenberg, N. R.	GSFC Code 920.1 *
Wolken, P. R.	507-105

Deep Space 1

Hunt, J. C.	230-207
Moyd, K. I.	230-207
Rayman, M. D. (PM)	230-207
Tay, P.	264-235
Yetter, K. E.	264-235

Galileo

Compton, B.	230-102
Huynh, J. C.	230-102
McClure, Jr., J. R.	230-102
Medina-Gussie, M.	301-371
Paczkowski, B. G.	230-260
Pojman, J. L.	301-276
Theilig, E. E. (PM)	264-538

Genesis

Arroyo, B.	264-235
Burnett, D. S.	CIT 170-25
Hirst, E. A.	301-180
Sasaki, C. N. (PM)	264-370
Sweetnam, D. N.	264-370
Tay, P.	264-235
Yetter, K. E.	264-235

Goldstone Deep Space Communications Complex

Holmgren, E.	DSCC-25
Massey, K.	DSCC-61
McConahy, R.	DSCC-33
McCoy, J.	DSCC-57
Mischel, D.	DSCC-37
Sturgis, L.	DSCC-33

Goldstone Orbital Debris Radar (GODR)

Goldstein, R. M. (PM)	300-227
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Goldstone Solar System Radar (GSSR)

Haldemann, A. F.	238-420
Hills, D. L.	238-420
Ostro, S. J. (PS)	300-233
Slade, III, M. A. (PM)	238-420
Wolken, P. R.	507-105

Gravity Probe-B

Keiser, M. (PS)	Stanford Univ.*
Shapiro, Prof. I. I.	Harvard*

ICE Radio Science

Woo, R.	238-725
--------------	---------

IMAGE

Abramo, C. A.	507-120
Burley, R. J.	GSFC Code 632.0*
Green, J. L.	GSFC Code 630*

ISTP (Cluster II)

Abramo, C. A.	507-120
Chang, A. F.	264-844
Christensen, J. L.	GSFC Code 404.0*
Dutilly, R. N.	GSFC Code 581.1*
Mahmot, R. E.	GSFC Code 444.0*
Pickett, J.	U. of Iowa*
Worrall, W. D. (PM)	GSFC Code 444.0*

ISTP (GEOTAIL/POLAR/SOHO/WIND)

Abramo, C. A.	507-120
Alexander, H.	507-120
Bush, R. I.	Stanford Univ.*
Carder, M. E.	GSFC 450.C
Chang, A. F.	264-844
Dutilly, R. N.	GSFC Code 581.1*
Hearn, S. P.	GSFC Code 450.C*
Mahmot, R. E.	GSFC Code 444.0*
Milasuk-Ross, J.	GSFC Code 428.5*
Miller, K. A.	GSFC Code 450.C*
Mish, W. H.	GSFC Code 690*
Nace, E. M.	GSFC Code 450.8
Pukansky, S. M.	GSFC Code 450.C*
Worrall, W. D. (PM)	GSFC Code 444.0*

JPL/General

Burgess, L. N.	230-107
Burton, M. E.	169-506
Chadbourne, P.	230-207
Finley, S. G.	11-116
Gershman, R.	264-440
Hirst, E. A.	301-180
Holladay, J. A.	303-404
Jurgens, R. F.	238-420
Kahn, P. B.	301-486
Kliore, A. J.	161-260
Kobrick, M.	300-233
Moore, W. V.	161-260
Morabito, D. D.	161-260
Naudet, C. J.	238-600
Resch, G. M.	238-600
Robbins, P. E.	161-260
Silva, A.	149-200
Smith, J. L.	301-180
Taylor, A. H.	301-350
Toyoshima, B.	301-385
Winterhalter, D.	169-506
Woo, H. W.	126-221
Yung, C. S.	238-808

Madrid Deep Space Communications Complex

Chamarro, A.	MDSCC #
Rosich, A.	MDSCC #

MAP

Abramo, C. A.	507-120
Citrin, E. A. (PM)	GSFC Code 730*
Coyle, S. E.	GSFC Code 581.0*
Dew, H. C.	GSFC Code 423.0*

Mars Exploration Rover (MER A & B)

Adler, M.	301-455
Arroyo, B.	264-235
Erickson, J. K.	264-525
Roncoli, R. B.	301-140L
Theisinger, P. C. (PM)	301-455

Mars Express Orbiter

Horttor, R. L. (PM)	238-540
McKay, M.	ESA/ESOC *
Thompson, T. W.	300-227

Mars Global Surveyor

Arroyo, B.	264-235
Brower, E. E.	264-235
Thorpe, T. E. (PM)	264-214
Yetter, K. E.	264-235

Mars Program Office

Cutts, J. A.	264-426
Jordan, Jr., J. F.	264-426
McCleese, D. J.	264-426
Naderi, F. M.	180-703

Mars Reconnaissance Orbiter Project

Arroyo, B.	264-235
Graf, J. E. (PM)	264-440
Johnston, M. D.	301-140L
Lock, R. E.	301-140L

Mars 2001 Odyssey Mission

Arroyo, B.	264-235
Harris, J. A.	264-214
Mase, R. A.	264-380
Pace, Jr., G. D. (PM)	264-255
Spencer, D. A.	264-255

NASA Headquarters

Costrell, J. A.	Code MT*
Hertz, P.	Code SR*
Holmes, C. P.	Code SR*
Spearing, R. E.	Code M-3*

NASA/ARC/General

Campo, R. A.	ARC 244-14*
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NASA/GSFC/General

Barbehenn, G. M.	GSFC Code 440.8*
Levine, A. J.	GSFC Code 451*
Martin, J. B.	GSFC Code 453.0*

NASA/SOMO

Dalton, J. T.	GSFC Code 720.0*
Downen, A. Z.	303-400
Hall, V. F.	JSC Code TG*
Morse, G. A.	JSC Code TA*
Thompson, E. W.	JSC Code GA*

NEAR

Antreasian, P. G.	301-276
Farquhar, R.	APL 2-155*
Holdridge, M.	APL 13N-319*
Miller, J. K.	301-125J
Moore, G. A.	APL 13N-319*
Santo, A. G.	APL M1-126*
Williams, B. G.	301-125J

NOZOMI (Planet B)

Chang, A. F.	264-844
Tay, P.	264-235
Yetter, K. E.	264-235

Outer Planets/Solar Probe

Carraway, J. B.	301-335
Ludwinski, J. M.	301-335

Radio Astronomy

Klein, M. J. (PM)	303-402
Kuiper, T. B. (PS)	169-506
Martinez, G.	507-120
Wolken, P. R.	507-105

Space Infrared Telescope Facility (SIRTF)

Arroyo, B.	264-235
Ebersole, M. M.	264-767
Gallagher, D. B. (PM)	264-767
Kwok, J. H.	264-767

Space Technology 3

Guske, P. J.	301-486
Linfield, R. P. (PS)	301-486
Livesay, L. L. (PM)	301-486
Patel, K. C.	198-219
Spradlin, G. L.	303-402

Stardust

Duxbury, T. C. (PM)	301-429
Ryan, R. E.	301-341
Tay, P.	264-235
Yetter, K. E.	264-235

TMOD / General

Coffin, R. C.	303-400
Doms, P. E.	303-400
Polansky, R. G.	303-400
Squibb, G. F.	303-400
Stelzried, C. T.	303-407

TMOD / Mission Management Office

Rosell, S. N.	303-407
Varghese, P.	230-207

TMOD / DSMS Engineering

Freiley, A. J.	303-404
Kimball, K. R.	303-404
Klose, J. C.	303-403
Kurtik, S. C.	303-210
Osman, J. W.	303-404
Sible, Jr., R. W.	303-404
Statman, J. I.	303-404

TMOD / DSMS Operations

Almassy, W. T.	502-420
Covate, J. T.	507-105
Dillard, D. E.	507-120
Frazier, R.	507-105
Gillam, I. T.	502-400
Green, J. C.	507-120
Hodder, J. A.	303-403
Knight, A. G.	507-120
Landon, A. J.	507-105
Linick, T. D.	303-403
Martinez, G.	507-120
Nevarez, R. E.	507-105
Recce, D. J.	303-403
Roberts, J. P.	507-105
Salazar, A. J.	303-403
Schroeder, H. B.	507-120
Short, A. B.	507-120
Wackley, J. A.	303-403
Waldherr, S.	507-120
Watzig, G. A.	502-420
Wert, M.	502-420

TMOD / DSMS Plans & Commitments

Abraham, D. S.	303-402
Altunin, V. I.	303-402
Bathker, D. A.	303-402
Benson, R. D.	264-844
Berman, A. L.	264-844
Beyer, P. E.	264-844
Black, C. A.	303-402
Cesarone, R. J.	303-402
Chang, A. F.	264-844
Gillette, R. L.	264-844
Griffith, D. G.	303-402
Holmes, D. P.	264-844
Kazz, G. J.	303-402
Luers, E. B.	303-402
Miller, R. B.	303-402
Peng, T. K.	303-402
Poon, P. T.	264-844
Slusser, R. A.	T-1720D
Wessen, R. R.	264-844
Yetter, B. G.	264-855

TMOD / DSMS RAPSO

Bartoo, R. H.	301-285
Borden, C. S.	301-165
Burke, E. S.	303-403
Caputo, R.	303-403
Hampton, E.	600-174
Hincy, W.	600-174
Hungerford, R. M.	301-285
Kehrbaum, J. M.	301-180
Kim, K.	600-174
Lacey, N.	600-174
Leppla, F. B.	600-174
Lineaweaver, S.	600-174
Martinez, K. A.	600-174
Morris, D. G.	303-403
Valencia, J.	600-174
Wang, Y-F.	301-165
Zendejas, S. C.	301-165

Ulysses / Voyager

Bray, T. L.	264-114
Brymer, B. F.	264-114
Cummings, A. C.	CIT*
Hall, Jr., J. C.	264-801
Massey, E. B. (PM)	264-801
Nash, J. C.	264-114
Smith, E. J. (PS - ULS)	169-506
Webb, I. J.	264-114

U.S. Space VLBI

Altunin, V. I.	303-402
Miller, K. J.	264-828
Smith, J. G. (PM)	264-828

YOHKOH

Chang, A. F.	264-844
-------------------	---------

Other Organizations

Crimi, G. F.	SAIC*
Laemmel, G.	DLR-GSOC*
Wanke, H.	DLR-GSOC*

* off-site label

TMOD consolidated weekly shipment

Please mark any additions, deletions, or corrections to this distribution list and return to:

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 Pasadena, CA 91109 / 818-393-3535
 email: David.G.Morris@jpl.nasa.gov

TELECOMMUNICATIONS AND MISSION OPERATIONS DIRECTORATE



Deep Space Mission System Operations Program Office

DSN Operations

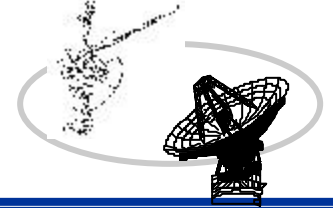


Jim Hodder

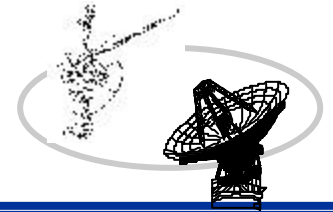
January 18, 2001

NASA Jet Propulsion Laboratory

JOINT USERS RESOURCE ALLOCATION PLANNING COMMITTEE

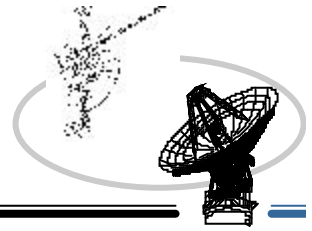
***Deep Space Mission System Operations Program Office*****DSN System Availability**

<u>Data Type</u>	<u>November 2000</u>	<u>December 2000</u>
Telemetry	98.6%	99.2%
Tracking	98.4%	98.8%
Command	98.9%	91.1%
Monitor	99.8%	99.9%
Radio Science	99.9%	99.8%
VLBI	98.6%	97.6%



DSN Performance

- Thanks to all the projects for assisting in real-time resource reallocation during the weekend of January 14.
 - DSS 45 experienced a failure in the elevation encoder electronics circuitry. This has since been repaired.
 - DSS 25 was unable to radiate full power at MGS frequencies and was generating bad doppler, unusable for the Stardust EGA. As of today, the radiation problem has been corrected but the doppler problem is still being investigated.
 - DSS 54 has a pointing offset that resulted in the loss of a NEAR pass. This problem has been isolated to a mechanical problem with the azimuth encoder and a worked-around is in place until its maintenance period on January 19.



Resource Analysis Team

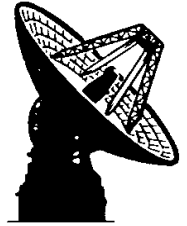


*Kevin Kim for
Frank Leppla*

January 18, 2001

NASA Jet Propulsion Laboratory

JOINT USERS RESOURCE ALLOCATION PLANNING COMMITTEE

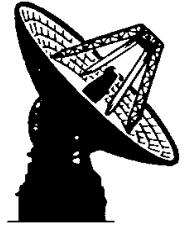


JURAP - JANUARY 18, 2001

◆ RESOURCE NEGOTIATION STATUS

- 2001 WEEKS 9 - 11 (THRU 03/18/2001) WERE RELEASED TO DSN ON 01/08/2001
- 2001 WEEK 12 (THRU 03/25/2001) WAS RELEASED TO DSN ON 01/15/2001
- 2001 WEEKS 13 - 16 (THRU 04/22/2001) ARE DUE TO BE RELEASED STARTING 01/19/2001*
- 2001 WEEKS 17 - 24 (THRU 06/17/2001) WILL GO INTO NEGOTIATIONS STARTING 01/22/2001

* WEEKS WILL BE RELEASED ON WEEKLY BASIS, HENCE, ONLY WEEK 13 IS SCHEDULED TO BE RELEASED ON 01/19/2001.



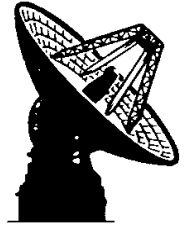
Joint Users Resource Allocation Committee

◆ SPECIAL STUDIES/ACTIVITIES

- CASSINI ARRAY SUPPORT STUDY 2004 - 2008

◆ ON-GOING ACTIVITIES

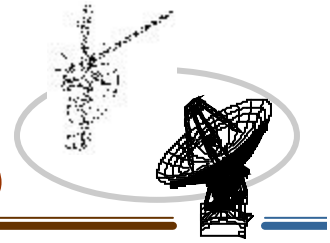
- MADB/TIGRAS TESTING AND TRAINING
- GALILEO EXTENDED MISSION STUDY
- CONTOUR LOAD STUDY
- MEO LOAD STUDY
- SOLAR STEREO STUDY
- VSOP2 LOAD STUDY
- FEBRUARY 2001 RARB PREPARATION STUDY



Joint Users Resource Allocation Committee

◆ FEBRUARY 2001 RARB TIMELINE

- 01/23/01 -21 DAYS PUBLISH PRELIMINARY REDBOOK
- 01/30/01 -14 DAYS REVIEW CONTENTIONS WITH
PROJECT REPRESENTATIVES FOR
ACCEPTANCE OR REJECTION
- 02/06/01 -7 DAYS PUBLISH FINAL REDBOOK
- 02/09/01 -4 DAYS DISTRIBUTE RARB MATERIALS
- 02/13/01 RARB



DSS DOWNTIME FORECAST



Napoleon Lacey

January 18, 2001

NASA Jet Propulsion Laboratory

JOINT USERS RESOURCE ALLOCATION PLANNING COMMITTEE

JOINT USERS RESOURCE ALLOCATION PLANNING

DOWNTIME PLANNING

January 18, 2001

DSN Downtime & Test Schedule is located on the RAP WWW Homepage at:

<http://rapweb.jpl.nasa.gov>

Although every effort is made to ensure the accuracy of this Downtime Planning report, changes can and do occur. The DSN 7-Day Schedule takes precedence over this document.

RESOURCE ALLOCATION PLANNING

REQUEST FOR DSN DOWNTIME

<u>FACILITY</u>	<u>TASK</u>	<u>[REQUEST]</u>	<u>Duration</u>
<u>GOLDSTONE</u>			
DSS-14	Antenna Controller Replacement (No Proposal)	[12/01/03 - 09/01/04] - 13 Weeks	

CANBERRA

DSS-43	Antenna Controller Replacement (No Proposal)	[12/01/03 - 09/01/04] - 10 Weeks	
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MADRID

DSS-63	Antenna Controller Replacement (No Proposal)	[12/01/03 - 09/01/04] - 10 Weeks	
DSS-65	Antenna Controller Replacement * (No Proposal)	[07/15/03 - 11/30/03] - 7 Weeks	

* Request Window DSS-65 Antenna Controller Replacement [07/15/03 - 11/30/03] must extend into 2004.
DSS-45 Antenna Controller Replacement is schedule for 09/08/03 - 10/26/03

NOTE: Antenna Controller Replacements - Completion Ranking
1. Goldstone 2. Canberra 3. Madrid - 1 Month interval between each complex

RAP must complete DSS-65 before starting the 70M Antenna Controller Replacements

NOTE **Request Window = [Earliest Start - Latest Finish]**

12/13/00

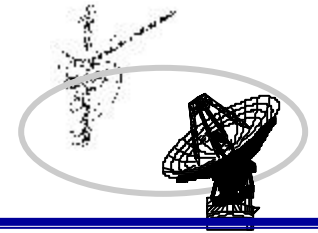
MAJOR DSN DOWNTIMES by DATE

The latest update is on: 1/16/01 4:24:00 PM
 *The highlighted portion indicates the last change made.

Year	Site	Description	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
2001	DSS 63	70M X-Band Uplink	07/23/01	10/10/01	80	30-41	204	283
2001	DSS 63	NIB - Feedcone Structure	07/23/01	10/10/01	80	30-41	204	283
2001	DSS 63	NIB - Hydrostatic Bearing Regrout	07/23/01	10/10/01	80	30-41	204	283
2001	DSS 63	NIB - Counterweight Rebalance	07/23/01	10/10/01	80	30-41	204	283
2001	DSS 63	NIB - Az Cablewrap Rehab	07/23/01	10/10/01	80	30-41	204	283
2001	DSS 63	NIB - Chiller+HtExch HVAC Mods	07/23/01	10/10/01	80	30-41	204	283
2001	DSS 16	Servo Hydraulic Drive Replacement	08/20/01	09/16/01	28	34-37	232	259
2002	DSS 66	Servo Hydraulic Drive Replacement	06/24/02	07/21/02	28	26-29	175	202
2002	DSS 14	70M Servo Drive Upgrade	07/15/02	09/27/02	75	29-39	196	270
2002	DSS 14	NIB - NSP Implementation	07/15/02	09/27/02	75	29-39	196	270
2002	DSS 15	NSP Implementation	08/01/02	09/27/02	58	31-39	213	270
2002	DSS 24	NSP Implementation	10/01/02	11/22/02	53	40-47	274	326
2002	DSS 45	NSP Implementation	10/01/02	11/22/02	53	40-47	274	326
2002	DSS 54	NSP Implementation	10/01/02	11/22/02	53	40-47	274	326
2002	DSS 26	NSP Implementation	10/01/02	03/30/03	181	40-13	274	089
2002	DSS 43	70M Servo Drive Upgrade	11/25/02	02/09/03	77	48-06	329	040
2002	DSS 43	NIB - Ball-Joint Pad Refurbishment	11/25/02	02/09/03	77	48-06	329	040
2002	DSS 43	NIB - NSP Implementation	12/02/02	02/09/03	70	49-06	336	040
2002	DSS 65	NSP Implementation	12/02/02	02/09/03	70	49-06	336	040
2003	DSS 63	70M Servo Drive Upgrade	02/10/03	04/20/03	70	07-16	041	110
2003	DSS 63	NIB - Ball-Joint Pad Refurbishment	02/10/03	04/20/03	70	07-16	041	110
2003	DSS 63	NIB - NSP Implementation	02/10/03	04/06/03	56	07-14	041	096
2003	DSS 25	NSP Implementation	02/10/03	04/06/03	56	07-14	041	096
2003	DSS 34	NSP Implementation	02/10/03	04/06/03	56	07-14	041	096
2003	DSS 15	Antenna Controller Replacement	03/03/03	05/04/03	63	10-18	062	124
2003	DSS 46	Servo Hydraulic Drive Replacement	05/05/03	06/01/03	28	19-22	125	152
2003	DSS 45	Antenna Controller Replacement	09/08/03	10/25/03	48	37-43	251	298

<http://rapweb.jpl.nasa.gov>

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 The DSN 7-Day Schedule takes precedence over this document.



Goldstone Solar System Radar



Martin A. Slade

January 18, 2001

NASA Jet Propulsion Laboratory

Joint Users Resource Allocation Planning Committee

Joint Users Resource Allocation Planning Committee

18 January 2001

Goldstone Solar System Radar

- **An Observation of Near-Earth Asteroid 2000 YF29 has been scheduled for Jan. 21, 2001**
- **Thanks to the Ulysses Low Elevation Modifications Task (DSN) for giving up time for this single critical observation**
- **Much of December and January has been devoted to rebuilding hardware to support the Mercury South Pole and Venus radar interferometric Topography observations**

Radio Astronomy & Special Activities



George Martinez
January 18, 2001

Joint Users Resource Allocation Planning Committee

TEMPO
(Time and Earth Motion Precision Observations)

- **Clock Sync**
 - **November**
 - **DOY 315**
 - No problems were reported by either DSS-15 or DSS-65.
 - Tapes sent to JPL Correlator for processing.
 - **DOY 319**
 - DSS-15 reported antenna oscillations.
 - DSS-65 reported that the antenna went into Azimuth prelimits.
 - Tapes sent to JPL Correlator for processing.
 - **November Metrics**
 - 2 observations – 95% of data time utilized.

TEMPO – cont'd
(Time and Earth Motion Precision Observations)

- **December**
 - **DOY 338**
 - **No problems were reported by either DSS-15 or DSS-65.**
 - **Tapes sent to JPL Correlator for processing.**
 - **DOY 350**
 - **No problems were reported by either DSS-15 or DSS-65.**
 - **Tapes sent to JPL Correlator for processing.**
 - **DOY 363**
 - **No problems were reported by either DSS-15 or DSS-65.**
 - **Tapes sent to JPL Correlator for processing.**
- **December Metrics**
 - **3 observations – 100% of data time utilized.**

Cat M & E

- **DOY 330**
 - No problems were reported by either DSS-15.
 - DSS-65 reported a cable wrap problem.
 - Tapes sent to JPL Correlator for processing.
- **DOY 337**
 - DSS-45 reported a vacuum failure in the recorder.
 - DSS-15 experienced fatal RFI from DSS-14 High Power Transmitter supporting GSSR experiment.
 - Tapes sent to JPL Correlator for processing.
- **Metrics**
 - 2 observations – 97% of data time utilized.

Gravity Probe - B

- **DOY 310**
 - X-band dual polarization prelaunch guidestar survey.
 - DSS-14 lost interface to the ACS and SRC.
 - DSS-43 reported an SRC reset.
 - DSS-63 reported no problems.
 - Data tapes sent to the Socorro Correlator for processing.
- **DOY 311**
 - X-band dual polarization prelaunch guidestar survey.
 - No problems reported by DSS-14.
 - Data tapes sent to the Socorro Correlator for processing.
- **Metrics**
 - 4 Observations – 97% of data time utilized.

Space Geodesy Program

- **Europe-59**
 - **Determine station coordinates and their evolution in the European geodetic VLBI network with the highest precision possible.**
 - **DSS-65 reported no problems.**
 - **Data tapes sent to the Bonn Correlator for processing.**
 - **100% of data time utilized.**

RAES

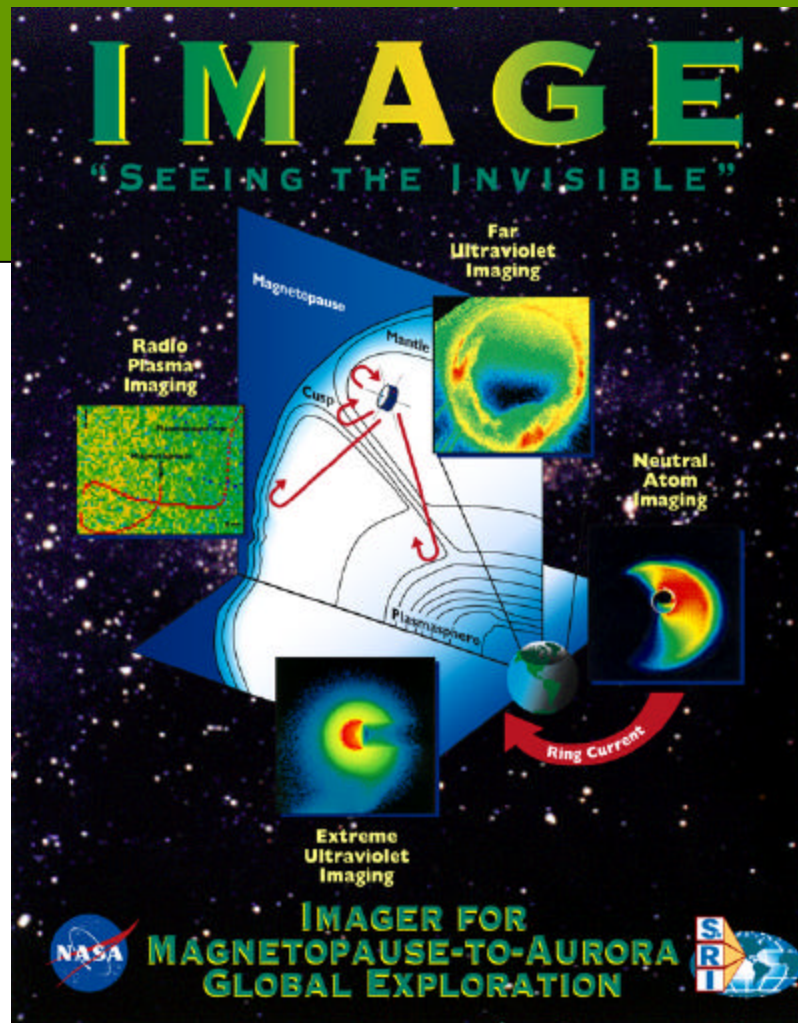
- **GB037**
 - The objectives of this experiment are to improve the Hubble constant for the lens system B0218+357 and to learn about the mass surface density and core radius of the redshift lensing galaxy.
 - No problems were reported by DSS-14.
 - DSS-63 reported the antenna reached elevation prelimits.
 - Tapes sent to Socorro Correlator for processing.
 - Correlator reports no problems with the data and fringes found.
- **GB038A**
 - This is part of a continuing experiment to study the expansion of the shell of supernova 1993J.
 - This experiment switched back and forth from X-band dual polarization to S-band dual polarization.
 - No problems were reported from either DSS-14 or DSS-63.
 - Tapes sent to Socorro Correlator for processing.

RAES – cont'd

- **GM043B**
 - K-band dual polarization Phase Reference experiment to study the proper motions of water masers in IRAS 20126+4104.
 - DSS-63 reported antenna oscillations.
 - Tape sent to Socorro Correlator for processing.
- **Metrics**
 - 3 experiments – 99% of data time utilized.

Ground Based Radio Astronomy (GBRA)

- **GBRA**
 - **Some Activities will be using GBRA as project.**
 - **Activities effected:**
 - Microwave Spectroscopy**
 - Planetary Astronomy**
 - Host Country**
 - RAES**
 - **Changes will make the schedule entries consistent with the Ground Based Radio Astronomy PSLA.**
 - **Changes will start with Week 05.**




Joint Users Resource Allocation Planning (JURAP) Committee

A. Berman

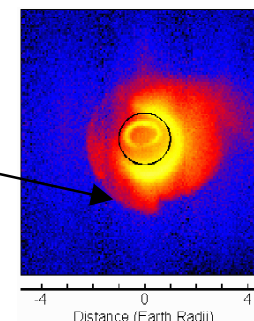
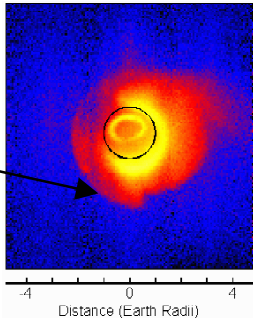
January 18, 2001

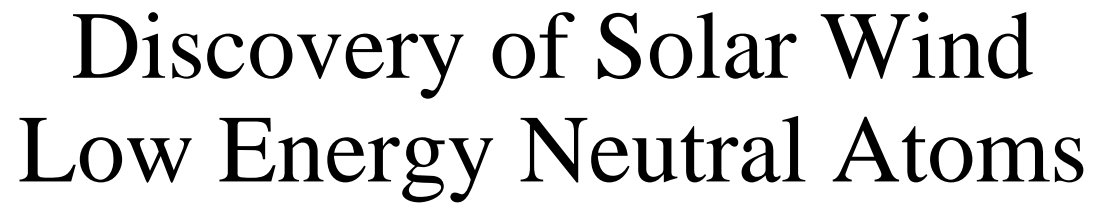
Jet Propulsion Laboratory

<http://image.gsfc.nasa.gov/>

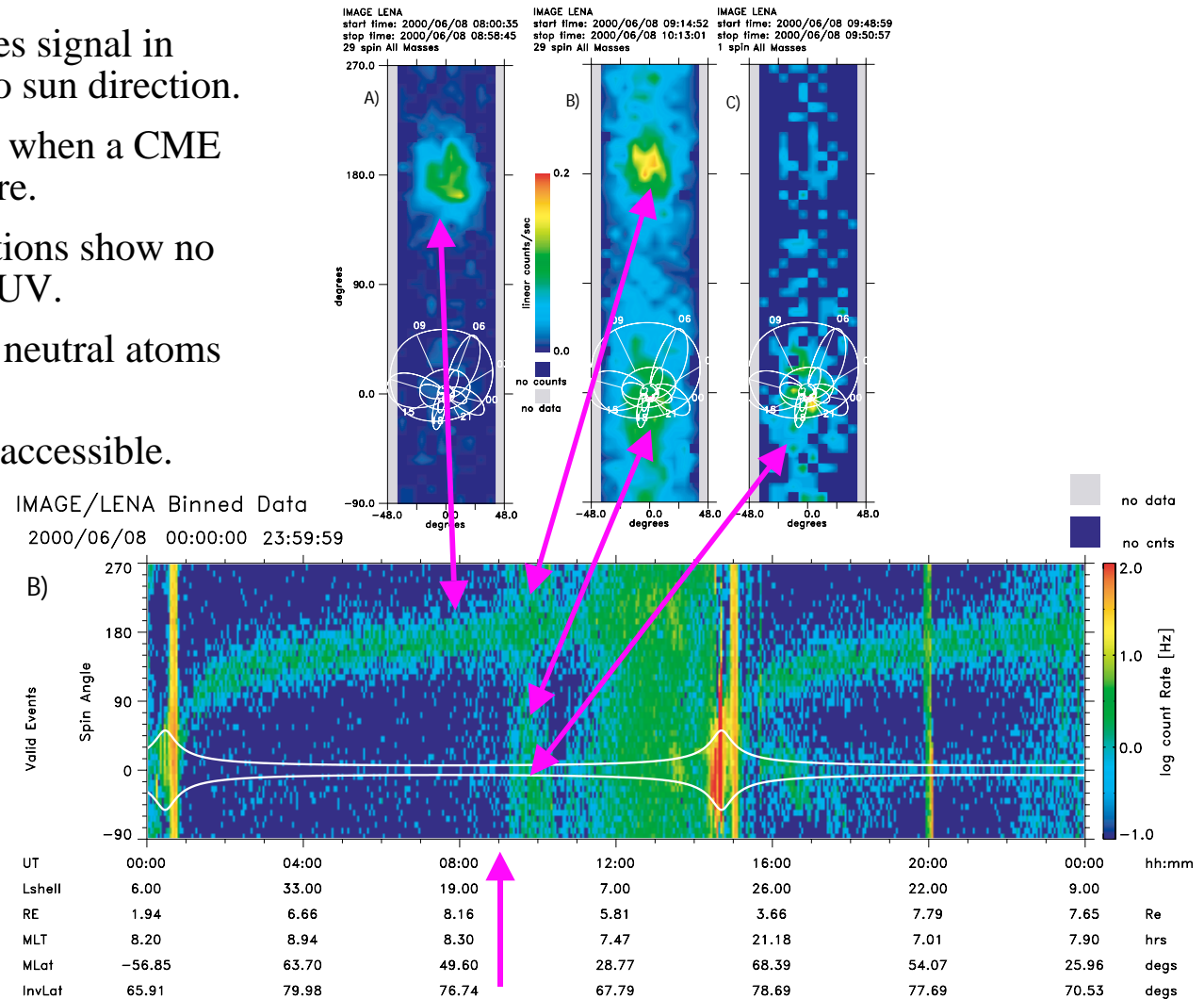
MSP Office	Space Science Operations Project Office	
Code 444	IMAGE Status 1/18/2001 R. Burley NASA/GSFC/632	

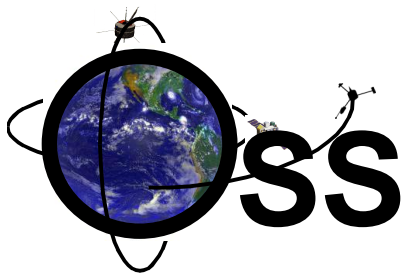
- IMAGE Spacecraft and Payload are operating NOMINALLY (mostly).
- Raw data collection rate > 99%.
- DSN Reliability is enabling IMAGE lights-out ops. IMAGE FOT down from pre-launch max 5 down to 2.5.
- IMAGE is seeing predicted but previously unobserved phenomenon: (see attached LENA Nugget).
- IMAGE is seeing unpredicted phenomenon:
 - Note the sharp 'shoulder' at the bottom of the Earth.
Process which causes such a sharp boundary is unknown.
- IMAGE is generating a significant volume of science:
 - 39 Papers/Presentations at latest AGU convention.
 - 9 Papers submitted to GRL (Geophysical Research Letters).
 - 1 Scientific American article (April, 2001)
- Based on early scientific returns, IMAGE Science Team will be requesting additional funds during upcoming Senior Science Review in order to extend IMAGE Operations past current EOPM date of 5/30/2002.





- LENA imager routinely sees signal in FOV including or closest to sun direction.
- Increase of this signal seen when a CME arrives at the magnetosphere.
- Independent EUV observations show no related variation of solar EUV.
- Conclusion: “sun pulse” is neutral atoms originating in solar wind.
- Predicted but previously inaccessible.



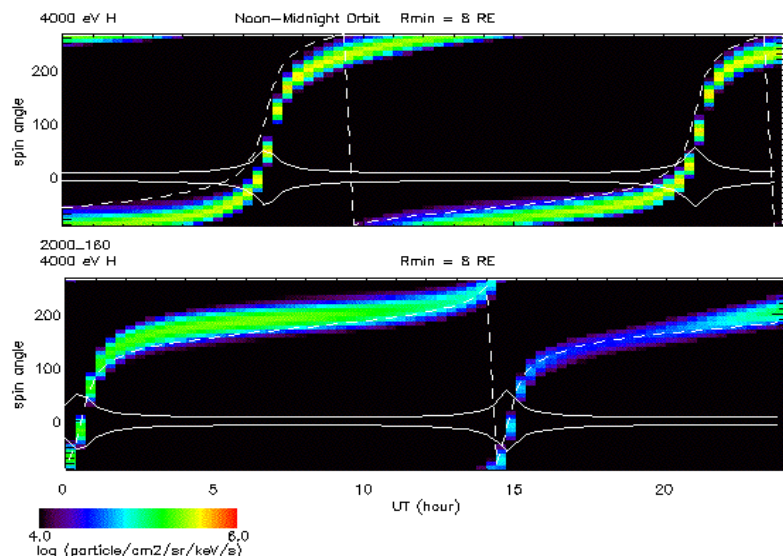


Simulation vs Observation of Solar Wind LENAs



● Simulations of SWLENA Spinograms

- Flux computed along line of sight from s/c to 50 RE to create image every 2 minutes.
- Images collapsed to orbit plane, laid up as strips.
 - ◆ Upper Panel: sun in FOV
 - ◆ Lower Panel: sun beyond FOV

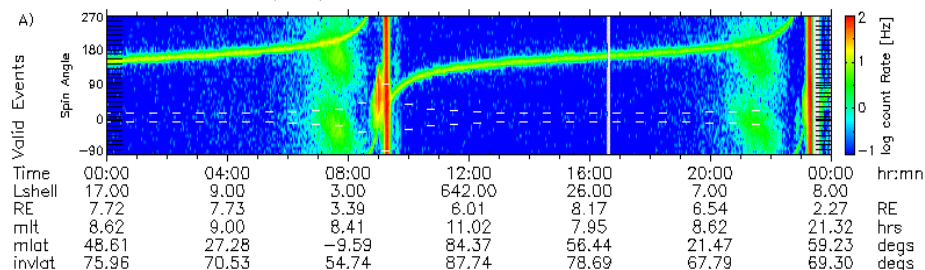


After Collier, Fok et al., JGR, in press, 2001.

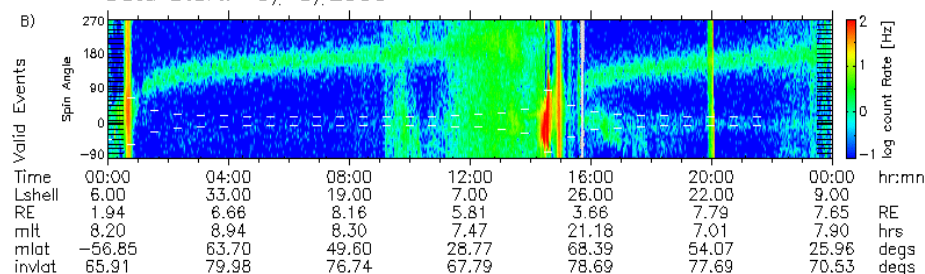
● Observations of SWLENAs as Spinograms

- Flux measured by IMAGE LENA imager, at 2 minute time spacing.
- Images are collapsed to orbit plane, laid up as strips vs. time.
 - ◆ Upper panel: sun in FOV
 - ◆ Lower panel: sun beyond FOV

IMAGE/LENA Binned Data
Data Start: 5/25/2000



IMAGE/LENA Binned Data
Data Start: 6/ 8/2000





WELCOME

STARDUST Project

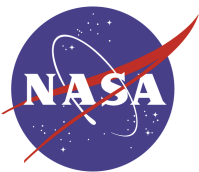


***JOINT USERS
RESOURCE ALLOCATION
PLANNING COMMITTEE***

***R. E. Ryan
January 18, 2001***

NASA Jet Propulsion Laboratory

<http://stardust.jpl.nasa.gov>



STARDUST



- **Successful EARTH GRAVITY ASSIST on January 15**
 - SECOND OF FOUR MAJOR MISSION EVENTS
- **SPACECRAFT IS HEALTHY (1/18/01)**
- **PRESENTLY 0.013 AU from EARTH**
 - 12 Sec RTLT
 - 0.98 AU from SUN

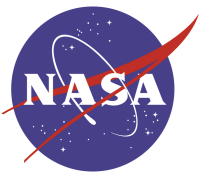


1/18/01

R. Ryan

1 of 4





STARDUST



- **TCM-4 (start of EGA) was completed on 12/5/00**
 - Original date was 14 November, re-scheduled for 28 November
 - 11/9 delay due to safe-mode entry after a massive solar flare
 - 11/22 delay because of non-convergence of orbit determination solution

Delta V of 2.808 meters/sec

burn duration 113 seconds

Opportunity for Nav Camera heating with Sun on the CCD radiator

- **TCM-5 was completed on January 5**

Delta V of 0.182 meters/sec

burn duration 5.2 seconds

Improved Earth Target uncertainty from 150 to 20 km

Calibration images from the Nav Camera showed good improvement

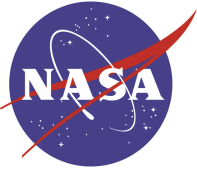


1/18/01

R. Ryan

2 of 4





STARDUST



- Earth close approach was Monday, January 15, at 11:15 UTC
- Perigee was South-East of the southern tip of Africa
- At an altitude of 6007 km (3,700 miles) from the surface
 - 1 hour 30 min comm outage because of low elevation (Canberra to Goldstone)
- Speed approximately 10 kilometers per second (22,400 mph)
- Orbital period changed from 2 to 2 1/2 years

- 15 hours after EGA, spacecraft flew within 98,000 km of the Moon
- 23 Nav Cam images were taken for calibration purposes

- **TMOD SUPPORT HAS BEEN VERY GOOD**
 - Some difficulties with DSS 25 during approach
 - DSS 15 brought in for close approach coverage



1/18/01

R. Ryan

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STARDUST



<http://stardust.jpl.nasa.gov>

**CHECK OUT THE HOMEPAGE FOR
THE LUNAR IMAGE
PICTURES OF STARDUST DURING EGA**

UPCOMING EVENTS

FEBRUARY 14

TCM-6 EGA CLEANUP

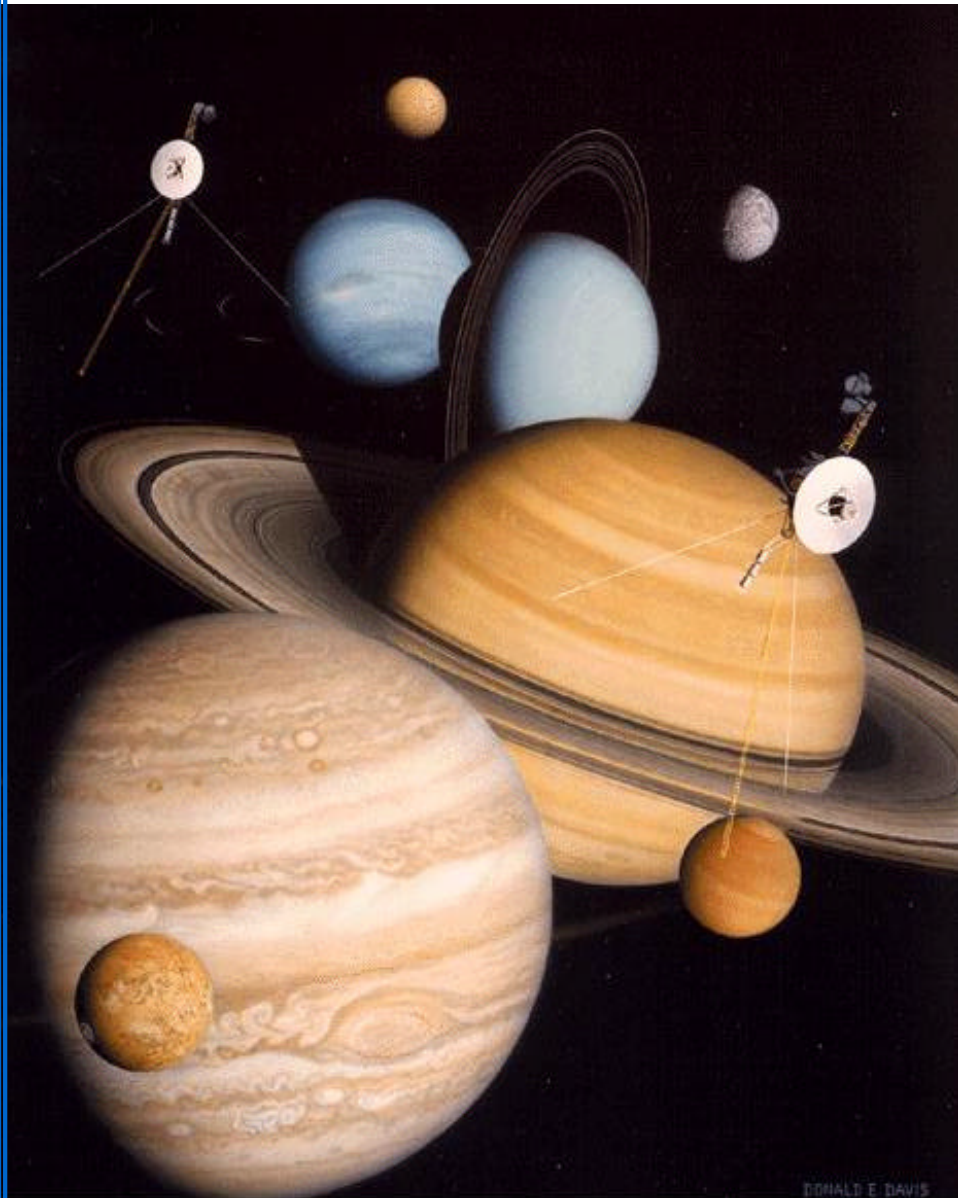


1/18/01

R. Ryan

4 of 4





*JOINT USERS
RESOURCE ALLOCATION
PLANNING COMMITTEE*

VOYAGER

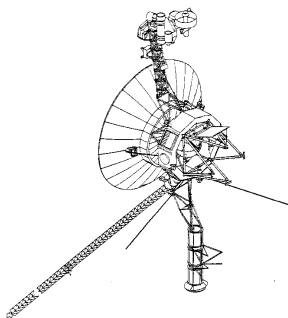
FLIGHT OPERATIONS



J. C. Hall, Jr.
January 18, 2001

NASA Jet Propulsion Laboratory

<http://vraptor.jpl.nasa.gov>



Voyager

FLIGHT OPERATIONS

JOINT USER'S RESOURCE ALLOCATION PLANNING COMMITTEE

FLIGHT SYSTEM STATUS MISSION STATUS

VOYAGER 1

- * HELIOCENTRIC DISTANCE – 79.9 AU, RTLT – 22h19m00s
- SPACECRAFT REMAINS HEALTHY
- MAJOR ACTIVITY - DTR PLAYBACK OF PWS DATA
- RTLT = 24h00m00s in 2002-280/06:57:54 (10/7/02)

VOYAGER 2

- * HELIOCENTRIC DISTANCE – 63.0 AU, RTLT – 17h42m38s
- SPACECRAFT REMAINS HEALTHY
- MAJOR ACTIVITY - DTR PLAYBACK OF PWS DATA

GROUND SYSTEM STATUS

(November 11, 2000 - January 12, 2001)

DSN - OVERALL SUPPORT – GOOD

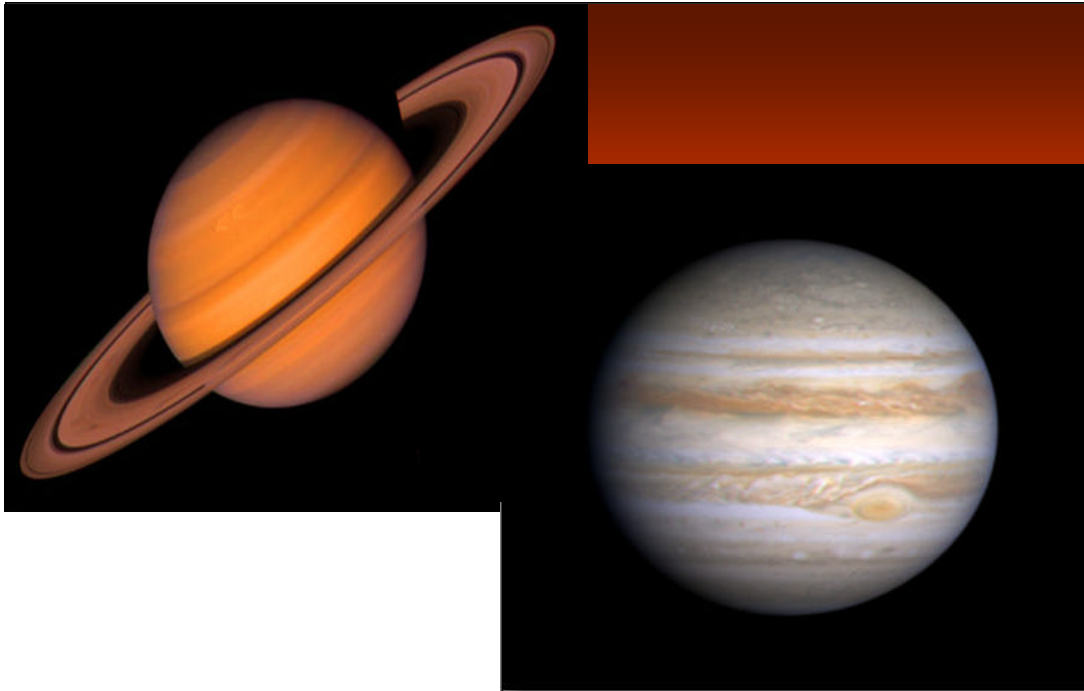
TOTAL SUPPORT TIME, OUTAGE TIME, % of OUTAGE TIME

S/C	SCHED SUPPORT	ACTUAL SUPPORT	70M TIME	SIGNIFICANT OUTAGE TIME	% of OUTAGE TIME
31	757.9	749.9*	351.8	2.6 (2.0)	0.61
32	545.1	544.9**	84.4	0.0 (1.4)	0.26

***2.3 hours of DSS-15 support released to Gravity Probe B. 2.3 hours of DSS-15 support released to Maintenance. 3.4 hours of DSS-45 support released to CLUSTER.**

****3.0 hours of DSS-34 support released to STRD launch. 4.9 hours of DSS-45 support released to NEAR.**

VOYAGER HOMEPAGE - <http://vraptor.jpl.nasa.gov>

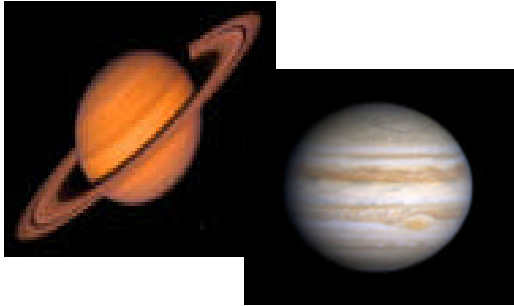


CASSINI

Joint Users Resource Allocation Planning (**JURAP**)
Committee Meeting

Dave Doody
January 18, 2001
NASA Jet Propulsion Laboratory

<http://www.jpl.nasa.gov/cassini/>

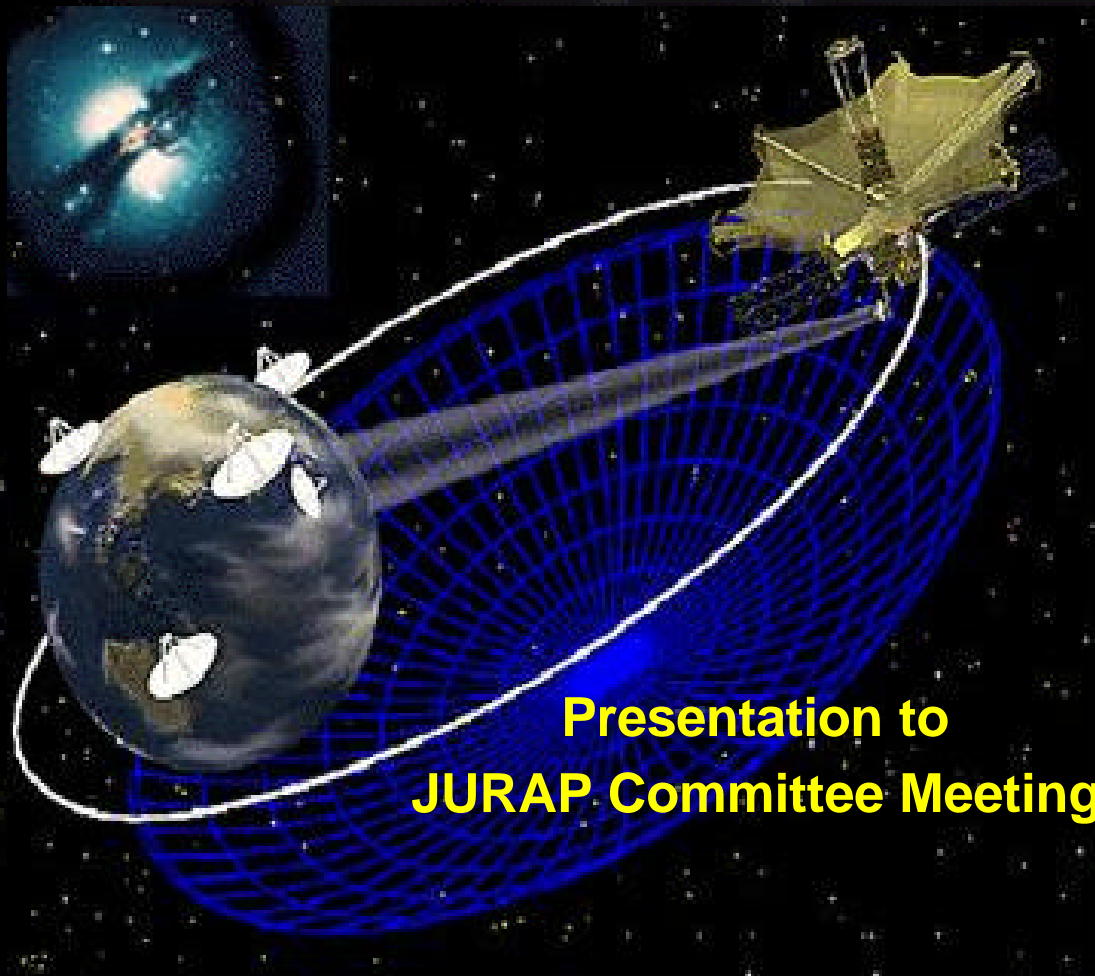


CASSINI

- **Next Stop, Saturn, July 2004**
 - Fourth and final gravity assist accomplished 2000 DOY 365, Jupiter C/A 9.7×10^6 km.
- **Jupiter Science Continues**
 - <http://www.jpl.nasa.gov/jupiterflyby> is a must-see !
 - Mag and Particle Science is enjoying the good fortune of multiple bowshock crossings!
“Suggesting that the s/c is skimming along the moving shock front” - *Ed Smith*
 - Jupiter Science Phase continues through 2001 DOY 089.
- **Operations Basically Nominal**
 - Reaction Wheel #2 anomaly: s/c autonomously switched to thruster control. Decision was to suspend science observations on 2000 DOY 354. Resumed DOY 364.
 - Conducted characterization tests, identified two probable failure modes. Remedy for both modes is to avoid a specific low-RPM range.
 - Each RW Momentum Desat is being biased so ops will avoid that RPM range.
 - Minor instrument anomalies being worked and recovered near real time
 - Huygens Probe link anomaly in work, additional tests with DSN DOY 031-036.
 - Excellent DSN support despite some difficulties finding symbol rates
- **First Prime-Objective science: GWE May & August 2001**
- **Tom Boreham (1946-2000) will be missed.**

U.S. Space VLBI

U.S. Space Very Long Baseline Interferometry Project



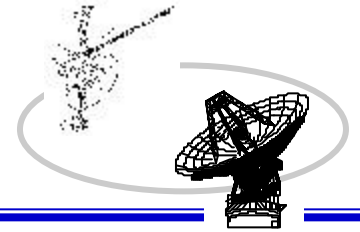
**Presentation to
JURAP Committee Meeting**

Valery Altunin

January 18, 2001

Jet Propulsion Laboratory

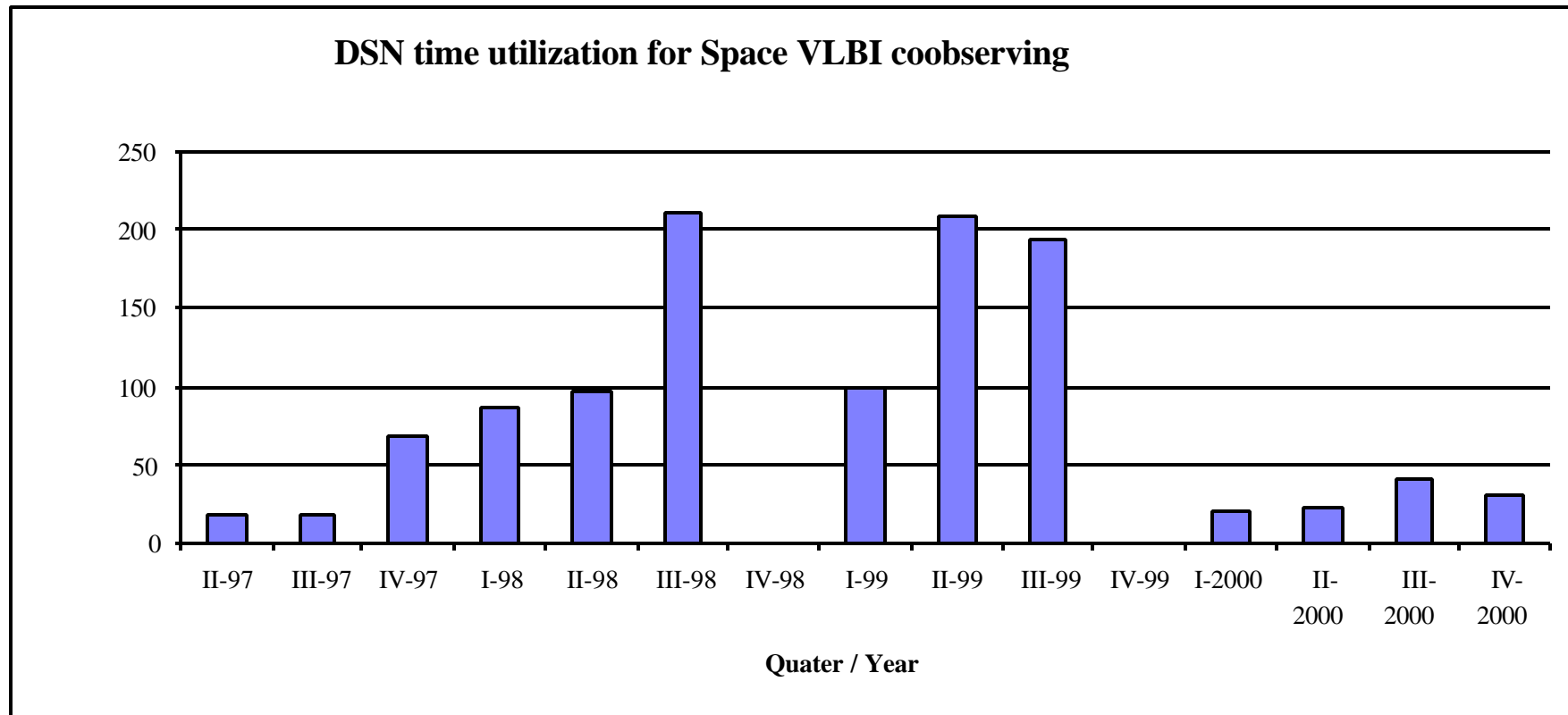
<http://us-space-vlbi.jpl.nasa.gov/>



SVLBI Co-observing Support

Spacecraft status

- HALCA spacecraft is healthy enough that its operation can be continued through February 2002 (official termination date for the NASA support) and probably further.





ulysses

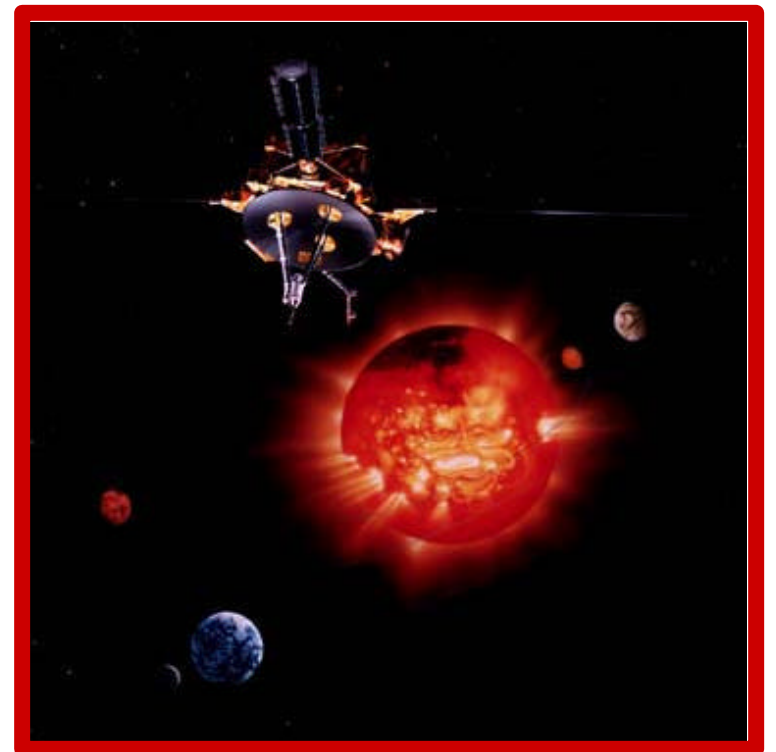
JOINT USERS RESOURCE ALLOCATION PLANNING COMMITTEE

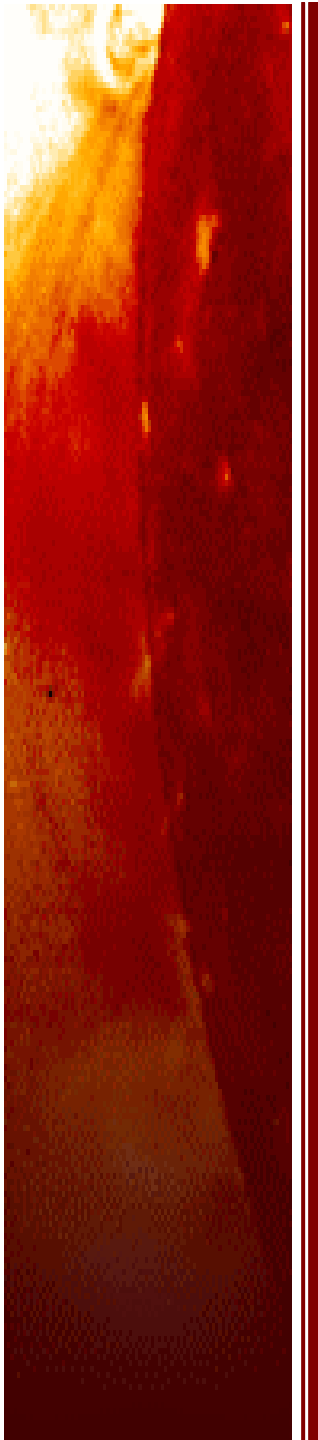
I. J. Webb

January 18, 2001

NASA Jet Propulsion Laboratory

<http://ulysses.jpl.nasa.gov/>





- Spacecraft operations are normal. The spacecraft has begun its second orbit around the sun and is currently in nutation operations. Instrument calibrations and reconfigurations are performed as required.
- DOY 345 - DSS 34. Antenna drove off point, procedural. Lost 22 minutes of telemetry. Nutation increased from .05 to >.2 during this period.
- DOY 345 - DSS 34. Antenna halted due to failed watchdog to AP34. Lost 31 minutes of telemetry. Nutation increased from .2 to .3.
- DOY 349 - DSS 43/34. Blown TSF transfer. DSS 43 used XA transfer, DSS 34 used TSF transfer (correctly). Nutation increased from .05 to >.2 during this period.
- DOY 366 - DSS 34 (SPC). Lost time code translator when FTS control system was reset, causing the antenna to halt. Lost 37 minutes of telemetry. Nutation stayed at .2 during this period.
- DOY 006 - DSS 43 (SPC). Complex-wide power failure. Lost 45 minutes of telemetry. No significant change in nutation.
- DOY 009 - DSS 43. Transmitter tripped off due to overtemp. Lost 13 minutes of telemetry. No change in nutation.



International Solar Terrestrial Physics

exploring the Sun-Earth connection

ISTP

Joint Users Resource Allocation Planning
Committee (JURAP)

Ron Mahmot

January 18, 2001

NASA Jet Propulsion Laboratory

<http://www-istp.gsfc.nasa.gov/istp/>

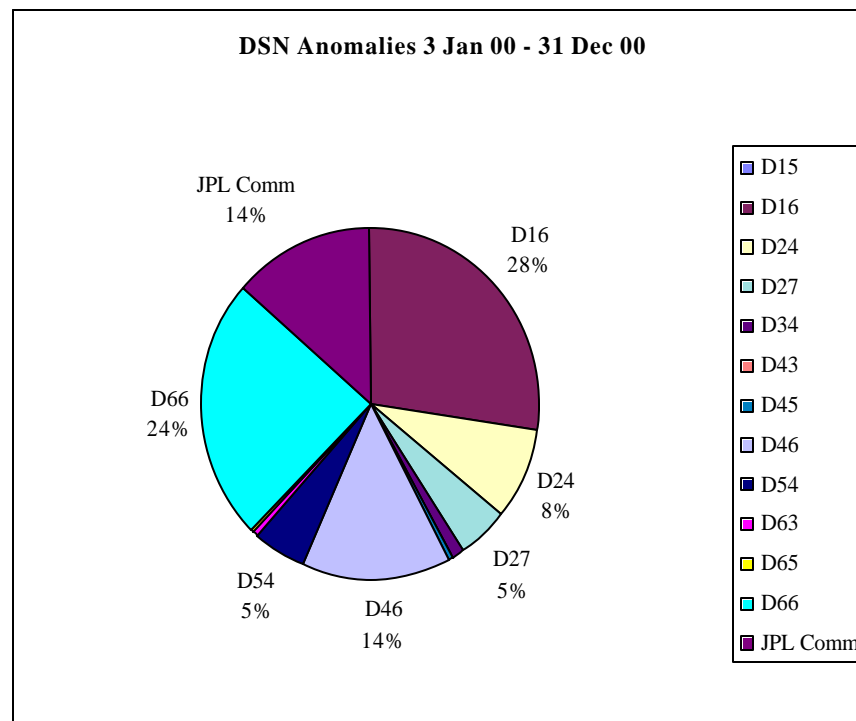


MONTHLY SPACECRAFT & PAYLOAD STATUS FOR IMAGE, ACE, WIND, POLAR, AND SOHO

- WIND and POLAR were nominal this month. POLAR successfully conducted loopback tests with the new uplink system using D34 and D54 on 1/17/01. WIND successfully conducted loopback tests with the new uplink system using D34 on 1/17/01.
- ACE: Weekly s/c attitude maneuvers were successfully performed. The ACE SEPICA instrument is not generating any science data. The instrument team is investigating the problem. ACE successfully conducted loop back tests using the new uplink system on D54, D34, and D24.
- IMAGE: On 1/11/01 the payload on-board computer IMAGE rebooted due to multiple memory bit errors. The re-boot instruments automatically put all the instrument into safe mode. By 1/14/01 the IMAGE team fully recovered back to full science.. IMAGE thanks CHANDRA for giving us one of their DSN passes and the DSN schedulers for helping to support this recovery effort.
- SOHO: Emergency Sun Reacquisition (ESR) was triggered due to an Attitude Control Unit computer reset on 1/14/01. A spacecraft emergency was declared in order to extend DSN 34 meter coverage. The emergency was lifted on 1/15/01. By 1/17/01 all the instruments were back in full science mode. Thanks to the DSN for supporting us during this critical time. And many thanks to the missions who gave up some of their time. SOHO successfully conducted loopback tests with the new uplink system using D34 and D24

SUMMARY OF SOHO DSN ANOMALY COUNT THIS YEAR

D15	D16	D24	D27	D34	D43	D45	D46	D54	D63	D65	D66	JPL Comm	Total
0	111	33	21	4	0	1	57	20	3	1	97	55	403





ISSUES

- CAST TOOL - FOR 21 MONTHS (AND COUNTING) GSFC HAS ATTEMPTED TO PUT THE JPL CAST TOOL IN THE HANDS OF OUR SCHEDULERS IN ORDER TO APPROVE CONFLICT RESOLUTION EFFICIENCY.
 - The last two months we have made progress but we are still are not using the tool yet



GALILEO EUROPA MISSION

***JOINT USERS RESOURCE ALLOCATION
PLANNING COMMITTEE***

***Brad Compton
January 18, 2001***

NASA Jet Propulsion Laboratory

<http://galileo.jpl.nasa.gov/>



Galileo Europa Mission

SIGNIFICANT EVENTS

- **Successfully executed OTM-90 (27 Oct)**
- **Successfully executed OTM-91 (21 Dec)**
- **Successfully completed Ganymede 29 Encounter (28 Dec)**
- **Successfully executed OTM-92 (02 Jan)**
- **Continued real time science buffer dump to tape strategy**



Galileo Europa Mission

PROJECT PLANS

- **Complete real time science buffer dump to tape strategy**
- **Begin Ganymede 29 playback**
- **Next encounter Callisto 30 (25 May)**



Mission Management Office (MMO)

Flight Operations Status



E. E. Brower

January 18, 2001

NASA Jet Propulsion Laboratory

MMO

<http://mars.jpl.nasa.gov/index.html>

AGENDA

- **MGS**
 - Color Status
 - Recent Events
 - Upcoming Events
- **Mars '01 (No Changes From Last JUPAP)**
 - At Cape, Launch on Schedule for April 7, 2001
 - Mission Objectives
 - Mission Trajectory
 - Mission Timeline
 - Cruise Navigation Enhancements



MGS Status

MGS

COLOR STATUS

	NOV	DEC	JAN
• FLIGHT OPERATIONS			
– SPACECRAFT	G	G	G
– NAVIGATION	G	G	G
– MISSION PLAN/SEQUENCE	G	G	G
• SCIENCE	G	G	G
• FLIGHT SUPPORT			
– GROUND DATA SYSTEM	G	G	G

RECENT EVENTS

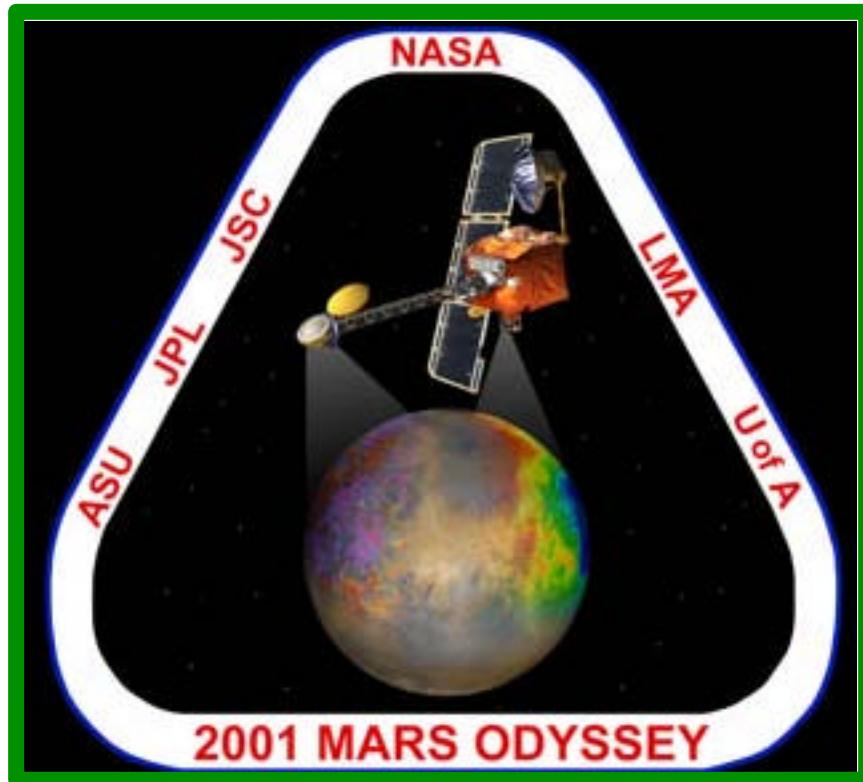
- | | |
|--|----------------|
| • Began Beta-supplement operations | FEB 7 |
| • Completed 1 year of mapping | MAR 9 |
| • 2nd mapping archive delivery (25,000 images) | MAY 22 |
| • Bistatic radar Radio Science measurement | MAY 14 |
| • MOLA polar scans | MAY17-18 |
| • Science Campaign D | MAY 29-JUNE 5 |
| • Solar conjunction | JUNE 25-JULY 9 |
| • Planetary Review extended mission Report | SEP 1 |
| • Science Campaign E | SEP 11-18 |
| • MOC focus calibrations | SEP 18-OCT 3 |
| • MOLA polar scans | AUG31, OCT 7 |
| • MOLA laser output drop to 18 mj | OCT 5 |
| • Southern hemisphere occultation observations | SEP 8, OCT 13 |
| • 3rd mapping archive delivery (34,000 images) | OCT 2-31 |
| • Extended Mission full funding authorization | OCT 16 |
| • Extended Mission Target ORT | DEC 4-5 |
| • Campaign F (TES/RS coincident atm. obs.) | DEC 9-DEC 21 |
| • First DDOR observation Successfully Obtained | JAN 9, 2001 |

MGS

UPCOMING EVENTS

- Extended Mission Target ORT2 (On Board Demo) JAN 27, 2001
 - Targeting Airy-0
- End of primary mission FEB 1, 2001
- 18 month archive complete APR 1, 2001
- Second year mapping archive complete OCT 1, 2001
- End of primary project OCT 1, 2001
- Beta supplement ends JUN 22, 2001
- End of nominal extended mission APR 22, 2002
- End of resource mission (no PQ orbit raise) APR 2003+
- End of extended project OCT 2003+

MGS



Mars'01 Status

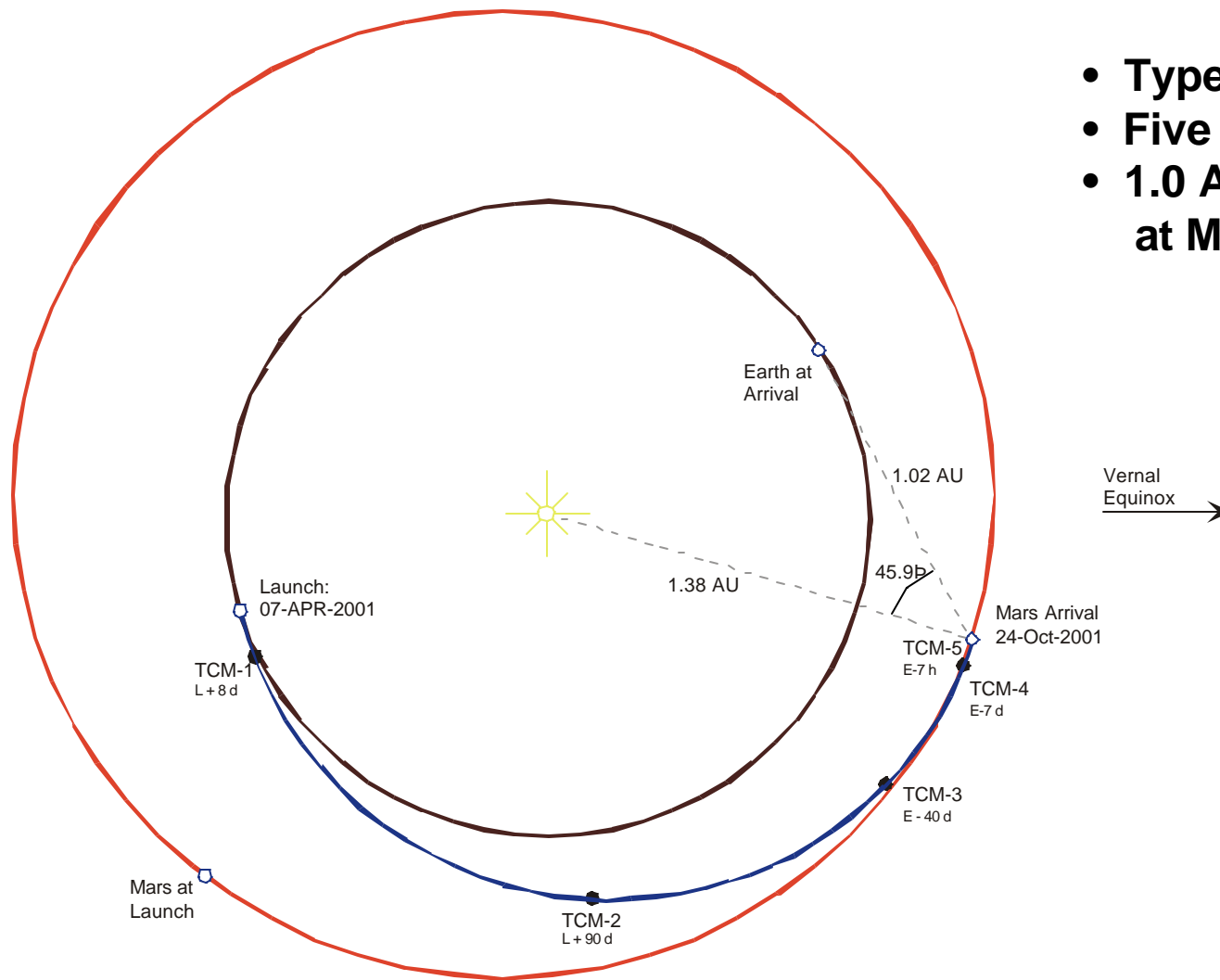
Mars Surveyor Program 2001

MARS'01 MISSION OBJECTIVES

- From Mars orbit, conduct a science mission for at least one Mars year (687 Earth days).
 - Globally map the elemental composition of the Mars surface.
 - Acquire high spatial and spectral resolution of the surface mineralogy.
 - Determine the abundance of hydrogen in the shallow subsurface.
 - Assess the Mars radiation environment.
 - Provide data for evaluation of future landing sites.
- Serve as a telecommunications relay for landed elements during the science mission, and for 1 Mars year following the end of the science phase, with a goal of an additional Mars year of relay activities (total mission lifetime goal of 3 Mars years).

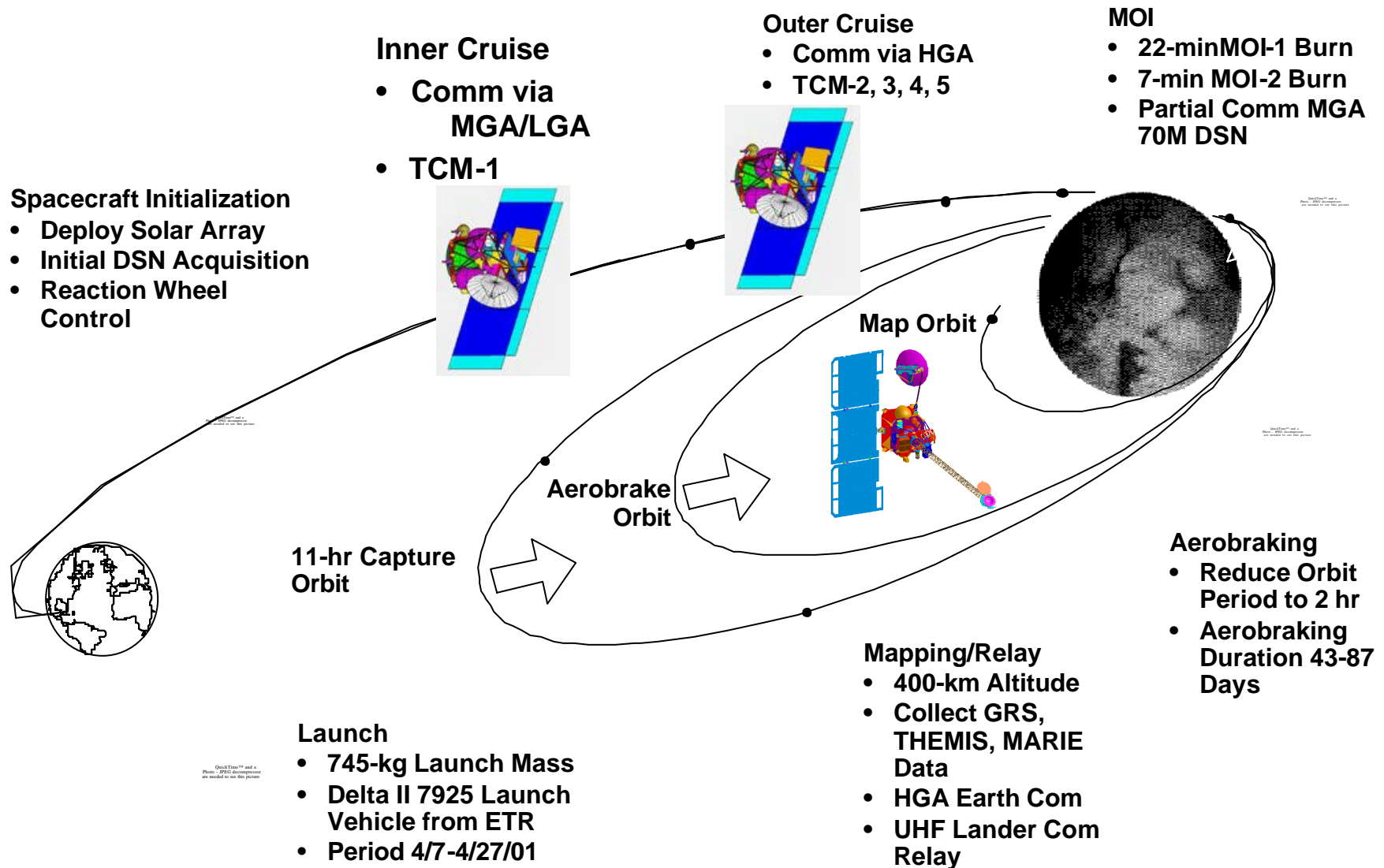
MARS'01 TRAJECTORY

- Type I transfer
- Five TCMs planned
- 1.0 AU Earth range at Mars arrival



Mars Surveyor Program 2001

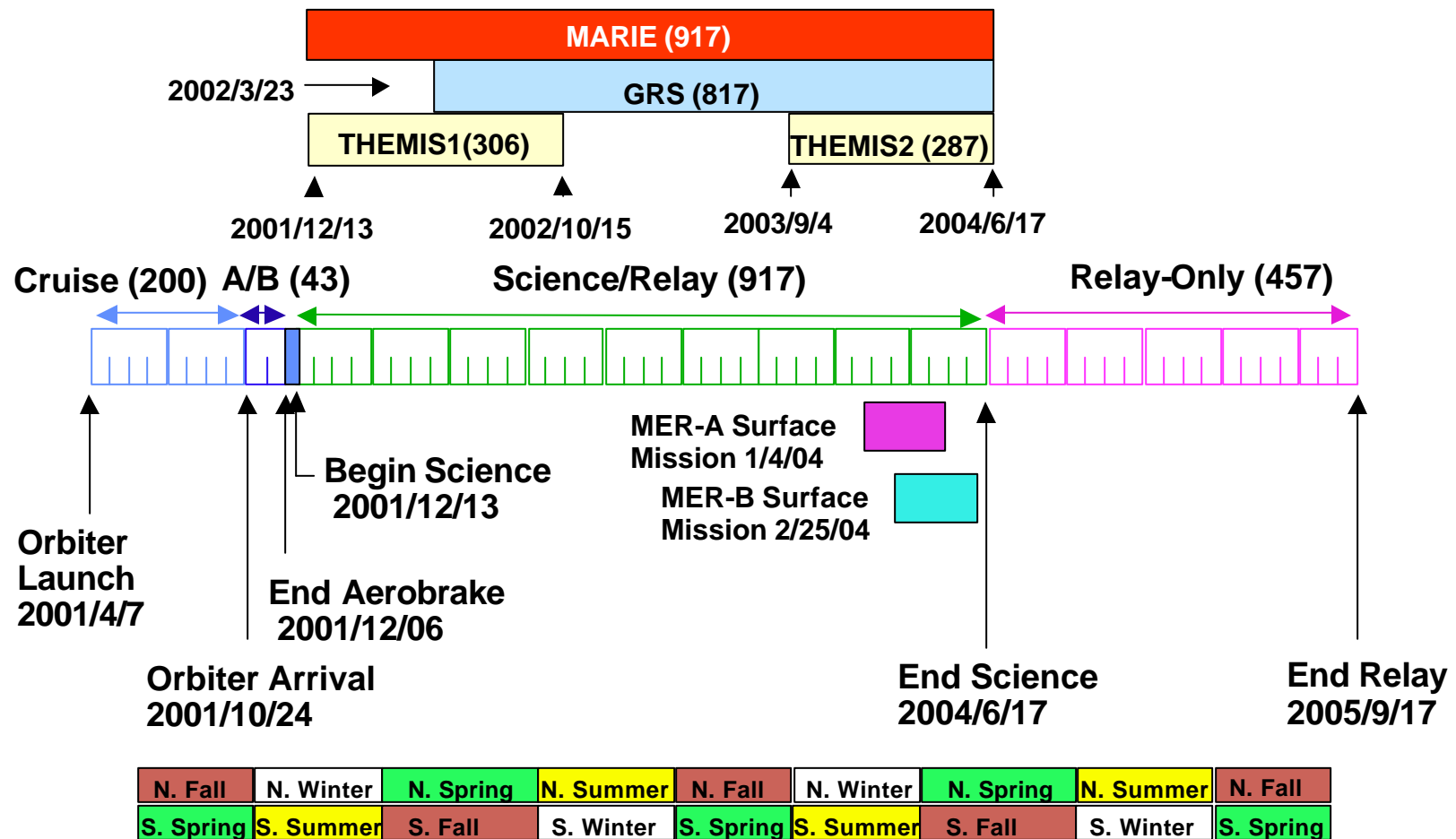
MARS'01 MISSION TIMELINE



Mars Surveyor Program 2001

MARS'01 MISSION TIMELINE

Assumes launch at open of launch period



Mars Surveyor Program 2001

CRUISE NAVIGATION ENHANCEMENTS

Risk Mitigation Approach	Status	Comments
Active/passive thruster calibration during cruise	Baselined	Active thruster cal along Earth line shortly after launch. Passive cals around TCMs 2-4.
Delta Differential One-Way Range (DDOR)	Baselined	To be tested during early cruise, utilized once per week during Mars approach phase. DOR tones on A-side SDST. MOU between Mars '01, '03 and MMO in works to fund TMOD DDOR support capability.

A detailed illustration of the Deep Space 1 spacecraft, showing its gold-colored body, solar panels, and various instruments, set against a black background with stars.

DEEP SPACE 1

Joint Users Resource Allocation Planning Committee (JURAP)

K. Moyd

NASA Jet Propulsion Laboratory

January 18, 2001

<http://nmp.jpl.nasa.gov/ds1/>

Previous Month's Activities and Current Status

- Solar Conjunction: Within 5 degrees from October 22 - December 5, 2000.
 - No problems with the spacecraft or ground systems were encountered. Spacecraft seems to have taken a quiescent trajectory.
 - On November 20 successfully received both X and Ka telemetry at DSS-25. (SEP 1.9 degrees) Attempt to array Ka with DSS-13 was not successful.
 - Stayed on the Conjunction burn star until spacecraft status confirmed on November 28 (SEP 3.8 degrees), then commanded a turn to a better Earth star.
- Instrument activities
 - Turn on of PEPE instrument to its planned encounter operation level was successfully conducted December 5 -12 and all of the data were downlinked by December 22.
 - MICAS scattered light test deferred until after deterministic thrusting is finished.

Telecom-Related Problems from November 15 - January 16

Blind pointing error at DSS-14 caused initial signal level to be significantly lower than expected throughout most of this period. Turning on CONSCAN would cause a signal increase of more than 3 db. Correction of a table prior to our January 10 pass seems to have solved the problem

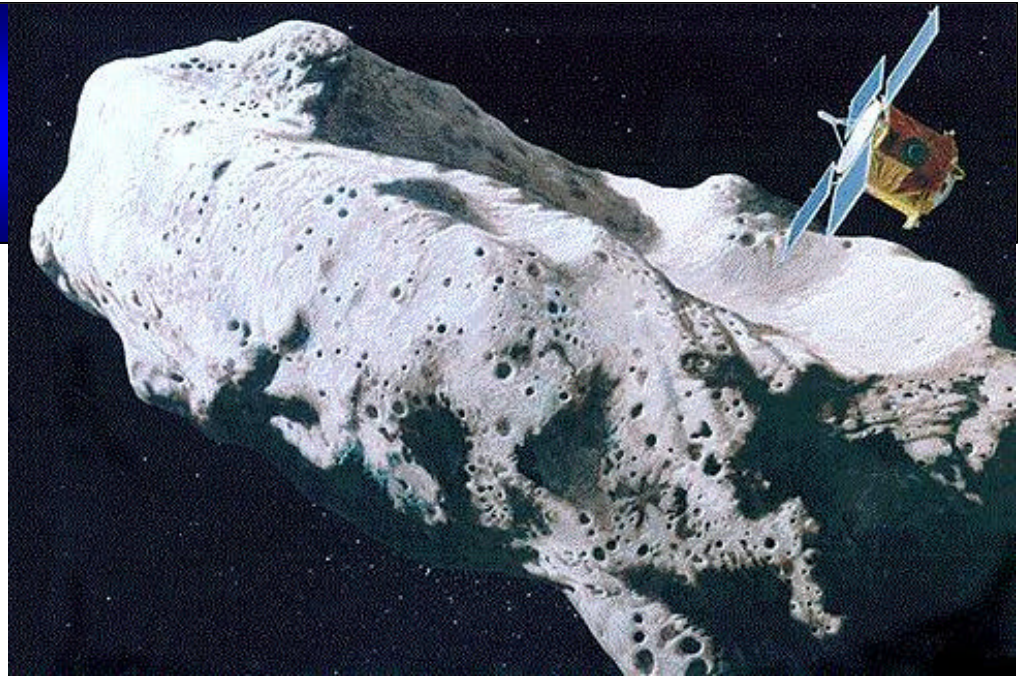
Near Term Plans

- The M6F3 version of flight software will be uplinked starting March 5, 2001.
 - A couple of DSS-14 tracks at the end of the period were traded for 34-meter tracks so DSN K-band testing using the DS1 signal could be done at DSS-14.
- Encounter rehearsal currently being planned for March 27.

Long Term Plans

- Thrusting needed to reach Comet Borrelly continues until May, 2001.
 - Because of the significant decrease in use of hydrazine while thrusting, we will be thrusting even during planned "coast" time. The strategy is still being developed.
- At least one encounter rehearsal will be conducted between June and September.
- Comet Borrelly encounter will occur September 22, 2001.
 - Time of the encounter will be controlled so as to work around the unavailability of DSS-63.

NEAR



Mission Operations

DSN Scheduling
January 18, 2001

*Joint Users Resource Allocation Planning
Committee*

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<http://near.jhuapl.edu/>



Spacecraft Status

- NEAR has been in orbit around the asteroid Eros for 302 days.
- ***Just 27 Days until End-of-Mission!***
- Spacecraft is healthy. All instruments on except Near Infrared Spectrometer (NIS) which is disabled due to excessive current draw.
- Range from Sun is 1.52 AU
- Range from Earth is 2.05 Au
- The RTLT is 34 min 06 sec (Jan. 18th)
- Currently 35 x 35 km orbit around Eros.
- Highest downlink data rate on 70-meter antennas is 26.5 kbps until End-of-Mission. Downlink on 34-m will be only 8.8 kpbs until EOM.



Maneuvers

- **Last month's OCMs:**
 - OCM-20 DOY 349 @ 0700 UTC (12/13/2000)
 - Circularize to 36 X 34 km orbit
- **Upcoming OCMs:**
 - OCM-21 DOY 024 @ 1605 UTC (01/24/2001)
 - Transfer to 35.5 km x 21.8 km elliptical orbit
 - OCM-22 DOY 028 @ 0120 UTC (01/28/2001)
 - Transfer to 36.0 X 18.4 km elliptical orbit
 - OCM-23 DOY 028 @ 1500 UTC (01/28/2001)
 - Circularize to 37 X 34 km orbit
 - OCM-24 DOY 033 @ 0000 UTC (02/02/2001)
 - Adjust to 37 X 35 km orbit
 - OCM-25? DOY ??? @ ???? UTC (02/??/2001)
 - Final orbit adjustment before descent.



January Close Approach Flyover

- **Similar to October Close Approach Flyby**
 - OCM-21 on DOY 024 @ 1605 UDT to set up highly elliptical lower orbit .
 - 9 flybys at 4.6 - 7 km, orbital period = 13.33 hours.
 - OCM-22 at DOY 028 @ 0120 to set up closest approach
 - 2 flybys at 2.8 - 4.2 km, orbital period = 12.5 hours.
 - Time of closest approach estimated to 0836, minimum altitude 2.8 km
 - Recovery burn on DOY 028 @ 1500
 - Transfer to 37 x 35 km, orbital period = 16.8 hours.



End of Mission Scenarios

- **Powered descent on Feb. 12th, 2001**
 - Simultaneous coverage using DSS-63 and -14 from 1635 - 2000.
 - Initiate descent at @ 1514 on DOY 043 (“In high gate”).
 - Five burns: EMM-1, EMM-2, EMM-3, EMM-4, and EMM-5
 - Collect images within 1 km range of spacecraft, best resolution on the order of 20 cm. Play back before touchdown.
 - Touchdown at @ 1943 with surface contact velocity 3.3 m/sec.
 - Attempt to contact spacecraft on surface using omni antennas, (carrier only, no telemetry).
 - Terminate DSN support and declare End-of-Mission by Feb. 14th (maybe be sooner if spacecraft confirmed on surface).